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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/560,037

02/05/2007

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EXAMINER

TRIEU, THERESA

ART UNIT

PAPER NUMBER

3748

MAIL DATE

DELIVERY MODE

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PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/560,037	<b>Applicant(s)</b> SAWAI ET AL.	
	<b>Examiner</b> Theresa Trieu	<b>Art Unit</b> 3748	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 08 December 2005.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-6 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-6 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 08 December 2005 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)            | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | Paper No(s)/Mail Date. _____                                      |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>01/04/2008, 12/08/2005</u> .                                  | 6) <input type="checkbox"/> Other: _____                          |

### **DETAILED ACTION**

Receipt and entry of Applicants' Preliminary Amendment filed on Dec. 18, 2005 is acknowledged.

Claims 3 and 4 have been amended. Claims 5 and 6 have been added. Thus, claims 1-6 are pending in this application.

#### ***Priority***

1. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

#### ***Information Disclosure Statement***

2. The listing of references in the specification is not a proper information disclosure statement. 37 CFR 1.98(b) requires a list of all patents, publications, or other information submitted for consideration by the Office, and MPEP § 609.04(a) states, "the list may not be incorporated into the specification but must be submitted in a separate paper." Therefore, unless the references have been cited by the examiner on form PTO-892, they have not been considered.

#### ***Drawings***

3. Figure 5 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). Corrected drawings in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted

Art Unit: 3748

by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

***Specification***

4. The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.

5. The abstract of the disclosure is objected to because they include reference characters which are not enclosed within parentheses. Correction is required.

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any

Art Unit: 3748

evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

6. Claim 1 is rejected under 35 U.S.C. 103(a) as being unpatentable over APA in view of Tojo et al. (Tojo) (Patent Number 4,861,245).

Regarding claim 1, APA discloses a scroll compressor wherein a fixed scroll 4 having a fixed scroll wrap on a fixed mirror plate and an orbiting scroll 5 having an orbiting scroll wrap on an orbiting mirror plate are combined with each other to form a plurality of compressed chambers, a back pressure chamber 12 is provided on a surface on the opposite side from the orbiting scroll wrap surface of the orbiting scroll, the back pressure chamber is divided by an annular seal 11 into an inner region 12a and an outer region 12b, a lubricant oil in a discharge pressure state is supplied to the inner region of the annular seal, a portion of the lubricant oil is decompressed at a narrowed portion and supplied to the outer region, the lubricant oil in the outer region is supplied to a suction space, pressure in the outer region is set to a predetermined pressure  $P_m$  between a suction pressure  $P_s$  and a discharge pressure  $P_d$ , thrust force is applied to a back surface of the orbiting scroll, thereby bringing the orbiting scroll into contact with the fixed scroll, rotation of the orbiting scroll 5 is restrained by a rotation- restraint member (not numbered; however, clearly seen in Fig. 5), the orbiting scroll is allowed to orbit, thereby moving the compressed chamber toward a center of scroll while reducing its volume, refrigerant gas is sucked into the compressed chamber and compressed. However, APA fails to disclose a

Art Unit: 3748

range of a ratio of a diameter of the orbiting mirror plate of the orbiting scroll and an outer diameter of the annular seal.

As shown in Fig. 1, Tojo teaches that it is conventional in the art to utilize a range of a ratio of a diameter of the orbiting mirror plate 15 of the orbiting scroll 4 and an outer diameter of the annular seal 22 being set greater than 0.5. It would have been obvious to one having ordinary skill in the art at the time the invention was made, to have utilized the range of a ratio of a diameter of the orbiting mirror plate of the orbiting scroll and an outer diameter of the annular seal, as taught by Tojo in the APA apparatus, since the use thereof would have improved the performance and the efficiency of the scroll compressor device. Moreover, it would have been obvious to one having ordinary skill in the art at the time the invention was made, to have utilized the range of a ratio of a diameter of the orbiting mirror plate of the orbiting scroll and an outer diameter of the annular seal, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. *In re Aller*, 220F.2d 454,456, 105 USPQ 233, 235 (CCPA 1955) (see MPEP §2144.05).

7. Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over APA in view of Tojo as applied to claim 1 above, and further in view of Ikeda et al. (Ikeda) (Publication Number CN 1420965).

The modified APA device discloses the invention as recited above; however, the modified APA fails to disclose a range of a ratio of the back pressure and a saturation vapor pressure when the refrigerant gas is at 0°C.

Ikeda teaches that it is conventional in the art to utilize a back pressure applied to the outer region divided by the annular seal (3m) is set such that a ratio of the back pressure and a saturation vapor pressure when the refrigerant gas is at 0°C is substantially a constant value and 0.2 or lower. It would have been obvious to one having ordinary skill in the art at the time the invention was made, to have utilized the range of a ratio of the back pressure and a saturation vapor pressure when the refrigerant gas is at 0°C, as taught by Ikeda in the modified APA apparatus, since the use thereof would have reduced the parts cost and the working cost and provided a highly reliable scroll compressor.

8. Claims 3 and 5 are rejected under 35 U.S.C. 103(a) as being unpatentable over APA in view of Tojo as applied to claim 1 above, and further in view of legal precedent.

The modified APA device discloses the invention as recited above; however, the modified APA fails to disclose the liquid refrigerant having dryness parameter of 0.5 or less. It would have been obvious to one having ordinary skill in the art at the time the invention was made, to have utilized the dryness range of the liquid refrigerant, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. *In re Aller*, 220F.2d 454,456, 105 USPQ 233, 235 (CCPA 1955) (see MPEP §2144.05).

9. Claims 4 and 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over APA in view of Tojo as applied to claim 1 above, and further in view of Takasaki et al. (Takasaki) (Publication Number JP 2000-136782).

The modified APA device discloses the invention as recited above; however, the modified APA fails to disclose the refrigerant being used as carbon dioxide.

Takasaki teaches that it is conventional in the art to utilize carbon dioxide as working gas (see Title). It would have been obvious to one having ordinary skill in the art at the time the invention was made, to have utilized the carbon dioxide as the refrigerant compressor, as taught by Takasaki in the modified APA apparatus, since the use thereof would have improved the performance and the efficiency of the scroll compressor device.

***Prior Art***

10. The IDS (PTO-1449) filed on Jan. 4, 2008 and Dec. 8, 2005 has been considered. An initialized copy is attached hereto.

11. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure and consists of patent: Fuji et al. (U.S. Patent Number 6,318,982) discloses a scroll compressor having a back pressure chamber and using carbon dioxide refrigerant compressor.

***Conclusion***

12. Applicant is duly reminded that a complete response must satisfy the requirements of 37 C.F.R. 1.111, including: "The reply must present arguments pointing out the specific distinctions believed to render the claims, including any newly presented claims, patentable over any applied references. A general allegation that the claims "define a patentable invention" without specifically pointing out how the language of the claims patentably distinguishes them from the references does not comply with the requirements of this section. Moreover, "The prompt development of a clear Issue requires that the replies of the applicant meet the objections to and rejections of the claims." Applicant should also specifically point out the support for any amendments made to the disclosure. See MPEP §2163.06 II(A), MPEP §2163.06 and MPEP §714.02. The "disclosure" includes the claims, the specification and the drawings.



***Communication***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Theresa Trieu whose telephone number is 571-272-4868. The examiner can normally be reached on Monday-Friday 8:30am- 5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Thomas E. Denion can be reached on 571-272-4859. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

TT  
August 4, 2008

/Theresa Trieu/  
Primary Examiner, Art Unit 3748